UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,000	11/29/2001	Winfried Rauer	235.021US1	3910

21186 7590 04/18/2006

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
WANG, TED M	

ART UNIT	PAPER NUMBER
2611	

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/998,000	RAUER ET AL.	
	Examiner	Art Unit	
	Ted M. Wang	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-24,26-31 and 33* is/are rejected.

7)☒ Claim(s) *25 and 32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed on 02/08/2006, with respect to claims 1-33 have been considered but are moot in view of the new ground(s) of rejection.

Claim objection

2. Claim 1-10 are objected to because of the following informalities:

- Claim 1, the limitation of "the measuring device" line 10 as recited is indefinite because it is unclear that "the measuring device" means "the electronic measuring device" (line 1) or "the voltage measuring device" (line 7).

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-4, 6-14, 16-24, 26-31 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zyl (US 5,416,723, see IDS) in view of Lalla et al. (US 6,703,943).

- With regard claims 1, 11, 26 and 33, as shown in figures 1 and 2, Zyl discloses an electronic measuring device for detecting a process variable connectable to a

two-wire line for providing the supply energy and for digital communication with a process control, comprising:

a two-wire terminal (Fig.1 elements A and B);

a sensor (Fig.1 elements 10, 12, ...) adapted to measure the process variable (claim 1);

a controlling device (Fig.1 elements 2, 4, 6, 8) for controlling components of the sensor;

a voltage measuring device (Fig.1and 2 element 24) for measuring supply voltage applied through the two-wire line (column 4, lines 20 and figure 2, claim 4), and

a current control unit (Fig.1 elements16) adapted to supply input current for the electronic measuring device.

Zyl discloses all of the subject matter as described in the above paragraph except for specifically teaching a current control unit adapted to supply input current for the electronic measuring device can be appropriately set as a function of the supply voltage measured by the voltage measuring device, so that the input current is adapted corresponding to the actual power demand during a time that is not detrimental to the communication.

However, Lalla et al. teaches that a current control unit (Fig.2 and 3 element 34, Fig.4 and 4 element 44) adapted to supply input current for the electronic measuring device can be appropriately set as a function of the supply voltage measured by the voltage measuring device (column 3 lines 10-25), so

that the input current is adapted corresponding to the actual power demand during a time that is not detrimental to the communication (column 1 line 54 – column 2 line 41 and column 3 lines 1-25) in order to provide a signal transfer and power supply assembly which as regards the sensors and signal conditioning units used in the transmitting station is highly flexible and as regards the power supply can be tailored to individual circumstances (column 1 lines 46-51). In addition, it also facilitates integratability of the device (column 2 lines 29-41).

Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the current control unit as taught by Lalla et al. to replace the 4-20 ma control circuitry 16 so as to improve the measuring device integratability.

- With regard claims 2, 4, 13 and 14, Zyl further discloses a device (c8) for determining an instantaneous power loss as recited in claims (column 4, line 58-column 5, line 22).
- With regard claims 3, Zyl further discloses wherein a pre-given maximum value is 20ma (16).
- With regard claims 6, 16 and 30, Zyl further discloses a device (10) is present by means of which the frequency of occurrence of sensor excitements can be determined without performing a measurement (column 4, lines 1-19).
- With regard claims 7 and 17, Zyl further comprising a current limit (14, R1, D9 and D10) (column 3, lines 29-38 and column 4, lines 14-19).

- With regard claims 8, 10, 18, 20, 28, and 29, Zyl further discloses wherein power loss as recited in claims is disclosed in column 4, line 37-column 5, line 22 and claim 4.
- With regard claims 9 and 19, it is inherent that a power loss due to a power demand excess is transformed into heat.
- With regard claims 12 and 27, Zyl further discloses wherein the current control unit includes two controls, one keeping the total current constant, and one providing for the fact that a little current is flowing through a shunt arm at all times (column 4, lines 38-56).
- With regard claim 21, which is a method claim related to claim 1, Zyl further discloses the current for supplying the measuring device is modified in a temporally appropriate manner (Fig.1 and 2 elements c8, R53). All other limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claim 22, Zyl further discloses wherein the voltage drop is measured at a resistor (Fig.1 element R53) for determining an instantaneous power loss.
- With regard claim 23, it is inherent the power loss is determined for determined a power input because the power loss is determined by the power output and the power input.
- With regard claims 24 and 31, Zyl further discloses wherein said method is realized in a measuring device including a sensor means, in which the distance from a filling product surface of a filling product present in a receptacle is

measured by means of ultrasonic pulses (column 2, line 66-column 3, line 7, column 3, lines 29-39 and column 4, lines 1-19).

5. Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zyl (US 5,416,723) and Lalla et al. (US 6,703,943) as applied to claim 2and 13 above, and further in view of Ito et al. (US 4,737,787).

- With regard claim 5 and 15, Zyl further discloses the ultrasonic transmitter (Fig.1 element 10 and column 4 lines 1-19) to transmit ultrasonic wave and a capacitor (Fig.1 element c8) connected upstream with a transmitter (column 3 lines 29-47) for store energy for the sensor means.

  Zyl and Lalla et al. disclose all of the subject matter as described above except for specifically teaching an A/D converter connected with said micro-controller.

  However, in the same field of endeavor, as shown in figure 12, Ito et al. teaches an A/D converter (Fig.12 element 37) connected with the micro-controller (Fig.12 element 34).

  It would be desirable to have an A/D converter connected with said micro-controller in the filling level measurement since the A/D converter 37 is supplied with the terminal voltage across the resistor 4 caused by the analog data transmitted from the process variable transmitter 1 and supplies the converted digital data to the MPU 34 so that the microprocessor will receive more accurate signal to improve the measurement operation. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the

A/D as taught by Ito et al. into Zyl and Lallas' clamp circuitry in order to improve the measurement operation.

Allowable Subject Matter

6. Claims 25 and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to overcome the objection(s) set forth in this Office action and rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

9. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M Wang
Examiner
Art Unit 2634

Ted M. Wang

KEVIN BURD
PRIMARY EXAMINER